IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Josh Judd	§	Customer No.: 29855
Serial No.: 10/699,603	§	Art Unit: 2616
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For: NETWORK PATH TRACING METHOD FOR MULTI-LEVEL SWITCHES	§	Docket No. 112-0139US

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APPEAL BRIEF

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I. REAL PARTY IN INTEREST

Brocade Communications Systems, Inc. is the real party in interest

II. RELATED APPEALS AND INTERFERENCES

None of which Applicant is aware.

III. STATUS OF CLAIMS

Claims 1-72 are rejected. The appealed claims are 1-72.

IV. STATUS OF AMENDMENTS

Claims 6, 7, 14, 24, 25, 32, 42, 43, 60, 61 and 68 were amended in an amendment filed after the Final Rejection. The Advisory Action indicated that the amendments will be entered for purposes of appeal.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This section provides a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by paragraph and line number and to the drawings by reference characters as required by 37 CFR § 41.37(c)(l)(v). Each element of the claims is identified with a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element.

Independent claim 1 recites a switch (Fig. 7, switch 700; ¶ 0053) for use in a fabric (Fig. 1, fabric 210; ¶ 0015), the switch comprising:

a plurality of ports (Fig. 7; Fig. 2A, ports 22, 24, 26, 28; ¶¶ 0019, 0053) configured to receive and transmit a frame;

a fabric manager (Fig. 2A, fabric manager 38; ¶¶ 0018, 0022) coupled to the plurality of ports to obtain the received frame and to provide a frame to be transmitted, the fabric manager configured to add information (Fig. 6, steps 628, 622, 626; ¶¶ 0034, 0040, 0047); and

a plurality of interconnected switching units (Fig. 7, edge switching units 702, 704, core switching unit 706; ¶ 0053) coupled to the plurality of ports so that a frame may traverse multiple switching units in the switch,

wherein the fabric manager is configured to add information to the frame, the information including receive and transmit port identity (¶ 0034), the switch identity (¶ 0034) and information about each of the plurality of switching units and interconnections (¶ 0054) when a frame traverses multiple switching units and to provide the frame for transmission.

Independent claim 19 recites a fabric (Fig. 1, fabric 210; ¶ 0015) comprising:

a first switch (Fig. 1, switches 221, 223, 225, 227, 229, 231; Fig. 2A, switch 20; Fig. 7, switch 700; ¶¶ 0015, 0018, 0053); and

a second switch (Fig. 1, switches 221, 223, 225, 227, 229, 231; Fig. 2A, switch 20; Fig. 7, switch 700; ¶¶ 0015, 0018, 0053) coupled to the first switch,

wherein each of the first and second switches includes:

a plurality of ports (Fig. 7; Fig. 2A, ports 22, 24, 26, 28; ¶¶ 0019, 0053) configured to receive and transmit a frame; and

a fabric manager (Fig. 2A, fabric manager 38; ¶¶ 0018, 0022) coupled to the plurality of ports to obtain the received frame and to provide a frame to be transmitted, the fabric manager configured to add information to the frame (Fig. 6, steps 628, 622, 626; ¶¶ 0034, 0040, 0047), the information including receive and transmit port identity (¶ 0034) and the switch identity (¶ 0034), and to provide the frame for transmission, and

wherein at least one of the first and second switches further includes:

a plurality of interconnected switching units (Fig. 7, edge switching units 702, 704, core switching unit 706; ¶ 0053) coupled to the plurality of ports so that a frame may traverse multiple switching units in the switch,

wherein the fabric manager of the switch is configured to add information about each of the plurality of switching units and interconnections (¶ 0054) when a frame traverses multiple switching units.

Independent claim 37 recites a network comprising:

a first node device (Fig. 1, computer system 250; ¶ 0015);

a second node device (Fig. 1, storage device 290; ¶ 0015); and

a fabric (Fig. 1, fabric 210; ¶ 0015) connected to the first and second node devices, wherein the fabric includes:

a first switch (Fig. 1, switches 221, 223, 225, 227, 229, 231; Fig. 2A, switch 20; Fig. 7, switch 700; ¶¶ 0015, 0018, 0053); and

a second switch (Fig. 1, switches 221, 223, 225, 227, 229, 231; Fig. 2A, switch 20; Fig. 7, switch 700; ¶¶ 0015, 0018, 0053) coupled to the first switch,

wherein each of the first and second switches includes:

a plurality of ports (Fig. 7; Fig. 2A, ports 22, 24, 26, 28; ¶¶ 0019, 0053) configured to receive and transmit a frame; and

a fabric manager (Fig. 2A, fabric manager 38; ¶¶ 0018, 0022) coupled to the plurality of ports to obtain the received frame and to provide a frame to be transmitted, the

fabric manager configured to add information to the frame (Fig. 6, steps 628, 622, 626; ¶¶ 0034, 0040, 0047), the information including receive and transmit port identity (¶ 0034) and the switch identity (¶ 0034), and to provide the frame for transmission, and

wherein at least one of the first and second switches further includes:

a plurality of interconnected switching units (Fig. 7, edge switching units 702, 704, core switching unit 706; ¶ 0053) coupled to the plurality of ports so that a frame may traverse multiple switching units in the switch,

wherein the fabric manager of the switch is configured to add information about each of the plurality of switching units and interconnections (¶ 0054) when a frame traverses multiple switching units.

Independent claim 55 recites a method of providing frame routing information through a switch (Fig. 7, switch 700; ¶ 0053) having a plurality of ports (Fig. 7; Fig. 2A, ports 22, 24, 26, 28; ¶¶ 0019, 0053) and a plurality of interconnected switching units (Fig. 7, edge switching units 702, 704, core switching unit 706; ¶ 0053) coupled to the plurality of ports so that a frame may traverse multiple switching units in the switch, the method comprising:

receiving a frame;

adding information to the frame (Fig. 6, steps 628, 622, 626; ¶¶ 0034, 0040, 0047), the information including receive and transmit port identity (¶ 0034), the switch identity (¶ 0034) and information about each of the plurality of switching units and interconnections (¶ 0054) when a frame traverses multiple switching units; and

providing the frame to a port for transmission.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 8-13, 18, 19, 26-31, 36, 37, 44-49, 54, 55, 62-67 and 72 were rejected under §103 over Perlman (U.S. Patent No. 5,844,902) in view of Mor (U.S. Patent No. 6,917,986). Claims 2-7, 20-25, 38-43 and 56-61 were rejected under § 103 over Perlman in view of Mor and further in view of Soumiya (US Patent No. 6,671,257). Claims 14, 16, 32, 34, 50, 52, 68 and 70 were rejected under § 103 over Perlman in view of Mor and further in view of Fredericks (U.S. Patent No. 6,347,334). Claims 15, 33, 51 and 69 were rejected under § 103 Perlman in view of Mor and further in view of Lee (U. S. Patent Application No. 2003/0099194).

VII. ARGUMENT

The claims do not stand or fall together. Instead, appellants present separate arguments for various independent and dependent claims After a concise discussion of cited art, each of these arguments is separately argued below and presented with separate headings and sub-heading as required by 37 CFR § 41.37(c)(l)(vii).

A. Section 103 Rejections

1. Claims 1, 19, 37 and 55

The claims all require a switch which includes a plurality of interconnected switching units coupled to the ports. The Final Office Action asserts that three separate switches 26, 27 and 28 in Mor together comprise a multi-tier switch. Applicant vigorously traverses this statement. Applicant requests reference to paragraph [0053] and Figure 7 of the instant application. There the Applicant clearly distinguishes individual, separate switches, such as those in Mor, with a multi-tier switch as required in the claims. Applicant submits that it is improper to use hindsight to simply combine clearly independent switches and label them as a multi-tier switch, in direct contravention to the definitions provided by the Applicant.

The Final Office Action addresses this argument by stating that the switches 26, 27 and 28 all fulfill a statement made in Applicant's paragraph [0053] that each switch may possess distinct routing functions. While Mor's switches do meet that statement, and indeed must as they are free-standing, independent units, that statement is not the controlling definition of a multi-tier switch. Therefore the statement in the Final Office Action is simply inapposite and Applicant's arguments have not been rebutted.

Further, the proposed combination in the Office Action destroys any meaning to the concept of fabric. As known to one skilled in the art, a fabric is formed by a series of independent switches. The proposed combination technique of the Office Action destroys the meaning of fabric by arbitrarily combining independent switches into a "multi-tier" switch, when the switches are clearly independent to form the fabric. It is improper to relabel the switches as proposed as it is clear that they are clearly intended in Mor to be independent switches, not a switch including a plurality of interconnected switching units as in the claims.

The Advisory Action states it would have been obvious to combine the Mor switches 26, 27, and 28 into one switch to reduce implementation cost and provide central control. Applicant respectfully disagrees. Mor shows the switches as independent, with no reason to combine them. Indeed, if the three switches were combined as suggested, it would remove the possibility of providing additional links for redundancy, the goal of Mors. The connections would be fixed, so that the goals of Mor could not be met except for limited circumstances.

Further, when the combination with Perlman is considered, the proposed combination of the Mor switches would not include information about each of the interconnected switching units. Perlman teaches adding information to the explorer messages for each bridge connecting two network rings. When the combination of the Office Action is performed, the three switches of Mor would collapse to be a single bridge in Perlman, which would then only identify the bridge between the WAN 24 and the user 40. Thus no internal switching unit information would be provided or necessary, as such information would not be needed to perform the source routing of Perlman. The only time Perlman would add information about each switch of Mor is if the switches were independent, but then the required included plurality of interconnected switching units would not be present.

The Final Office Action responds to this argument by stating that in Perlman every unit adds information, so when the Mor switching units are traversed their information would be added. It concludes with a statement suggesting that the Final Office Action considers the arguments to be against the references individually. However, those remarks apparently misconstrue Applicant's argument. Perlman only adds information when a network ring boundary is crossed, as it is a bridge. If the switches of Mor are collapsed as required in the Final Office Action, there would only be one transition equivalent to that of Perlman, and Perlman then would just identify the multi-tier switch as a unit, not the individual switches which compose the multi-tier switch as required in the claims. Applicant is not addressing the references individually but combining them as stated in the rejection and then applying the teachings of the references.

The Advisory Action makes the statement that information relating to the switch is also information about each of the switching units. While Applicant does not fully understand this comment, the claims require the addition of information about each of the plurality of switching

units and interconnections. Applicant does not understand how information about the collapsed switch as a whole would be information about each of the individual, included switching units and their interconnections. That information is irrelevant to Perlman as the only need is to know the bridge information between the network rings. Therefore Applicant submits that the comments in the Advisory Action are insufficient.

Applicant submits that the proposed combination of Mor is improper and, if performed, still does not teach the requirements of claims 1, 19, 37 and 55. Applicant therefore requests reversal of the rejection and allowance of all claims.

2. **Claims 11, 29, 47 and 65**

Claims 11, 29, 47 and 65 require the fabric manager to select the port to transmit the tracer frame based on normal routing rules. The Office Action cites col. 3, lines 31-33 and 54-55 in rejecting the claims. Applicant traverses the rejection. The cited portions of Perlman relate to ordinary messages. Those normal messages do not have any of the required additional information of the claim added to them. Thus their operation is not relevant to the claims.

The Advisory Action states that in Perlman information is added to normal messages, such as source and destination information. Applicant submits that the source and destruction information in a normal message is only supplied before the message is provided to the network, not added during transit as required. The building of the frame before transmission and adding to the frame during transit are completely non-analogous. Thus the statement is inapposite.

Further, the normal messages do not relate to the explorer messages discussed at col. 5, lines 29 to col. 6, line 8. Perlman, at col. 5, lines 63-65, specifically notes that the modified explorer message is forwarded to all connected LANs, except the source LAN. Thus Perlman indicates that explorer messages use very special routing rules, not the normal routing rules required by these claims.

The Final Office Action responds by indicating normal messages include source and destination addresses and are related to explorer messages and normal routing rules are used. The remarks ignore several portions of Perlman quoted below:

> While the above describes the typical mechanism for routing packets in a LAN/bridge network, it does not explain how the routes are determined. This is typically accomplished by means of "explorer" messages. (col. 5, lines 29-32)
>
> Through a procedure described below, copies of the explorer message are propagated through all of the bridges and LANs in the network, exploring every possible route through the network…. (Col. 5, lines 36-39)
>
> Explorer messages are subject to a special procedure when received by bridges. (col. 5, lines 55-56)
>
> … and then forwards 132 the modified version to all connected LANs (except the LAN from which the packet was received). (col. 5, lines 62-65)

Thus Perlman itself makes it very explicit that explorer messages do not use normal routing rules. The remark about "related" is also misplaced because the claims specifically require using normal routing rules on the frames which include the added information, which are not the messages of col. 3, lines 31-33 but are the explorer messages. Perlman explicitly says explorer frames use special procedures. How "normal" frames as in col. 3, lines 31-33 are routed is not the subject of the claims, so the entire argument advanced in the Final Office Action is not relevant to the claims.

The Advisory Action states that normal messages are also routed using normal routing rules. As far as Applicant can determine, the Advisory Action is improperly mixing elements of normal messages and explorer messages as needed by hindsight to attempt to meet the claims. Clearly this is improper. Normal messages do use normal routing rules but do not have information added in transit. Explorer messages have information added in transit but follow special routing rules just for explorer messages. Perlman does not suggest any amalgamation of the two messages types as they have very different purposes. Adding information to normal messages would only result in producing garbled messages, as the intent is to provide the included payload from point A to point B. Adding information to the payload makes little sense as that would be adding data. Explorer messages are to have the additional information added in transit, but routing the explorer messages using normal rules in Perlman which actually result in the complete failure of the explorer message. The purpose of the explorer message is to find a

route because one is not known. As normal routing rules require knowing the route, by definition are explorer message then could not reach its intended destination. Using the explorer message routing rules for normal messages would result in a flood of traffic in the network, probably a totally overwhelming flood. Thus one would not and cannot mix and match normal and explorer messages as apparently being done in the Final Office Action and the Advisory Action.

Applicant submits that claims 11, 29, 47 and 65 are allowable.

3. **Claims 12, 30, 48 and 66**

Claims 12, 30, 48 and 66 require the frames to include source routing information and that the ports transmit them based on the source routing information. The Office Action cites col. 3, lines 31-33 and 54-55 in rejecting the claims. Applicant traverses the rejection. The cited portions relate to ordinary messages. Those normal messages do not have any of the required additional information of the claim added to them. Thus their operation is not relevant to the claims. Further, they do not relate to the explorer messages discussed at col. 5, lines 29 to col. 6, line 8. Perlman, at col. 5, lines 63-65, specifically notes that the modified explorer message is forwarded to all connected LANs, except the source LAN. Thus Perlman indicates that explorer messages use very special routing rules, not the source routing required by the claims.

Applicant notes that neither the Final Office Action nor the Advisory Action responded to this argument.

Applicant submits that claims 12, 30, 48 and 66 are allowable.

4. **Claims 13, 31, 49 and 67**

Claims 13, 31, 49 and 67 require using normal routing rules if the source routing information does not indicate a directly connected device. The Office Action cites col. 3, lines 38-40 about the end system reading the message. Applicant does not understand how this citation relates to the claims. It does not involve routing at all. Further, as with claims 11 and 12, it is to a portion for normal messages, not explorer messages and therefore is further unrelated.

The Final Office Action responds by quoting from col. 3, lines 38-40 of Perlman, which simply indicate that if the message has reached its destination it is read. The Final Office Action then states that otherwise the message is forwarded using normal routing rules. Again Applicant does not understand how this relates to the claims being rejected. The claims relate to how the frame is routed if the source routing information does not indicate a directly connected device. The case of col. 3, lines 38-40 is not relevant to the claim at all. By definition the claim indicates that the frame is not at the destination as it must be further routed. Further, the Final Office Action did not address that the cited portion again only relates to normal messages, not explorer messages. The Advisory Action did not address this argument.

Applicant submits claims 13, 31, 49 and 67 are allowable.

5. **Claims 14, 32, 50 and 68**

Claims 14, 32, 50 and 68 require the frame to be destination addressed and the fabric manager to retrieve the true destination address from the payload. The Office Action combines Perlman and Fredericks to form the rejection. Applicant traverses the rejection.

Applicant first notes that the Perlman explorer messages are specifically addressed to the desired end point. To change them to being addressed to a well known address is not taught or suggested by Perlman and would completely destroy the fundamental operation of the Perlman explorer message. This is clearly a hindsight combination and goes against the teachings of the reference.

The Final Office Action effectively argues that hindsight is allowed if it only uses prior art information. Perlman specifically teaches that the explorer frame is addressed to the end node. The Final Office Action does not provide any support for this change other than “they both pertain to network communications” and “it would have been obvious.” Perlman is a series of ring networks connected by bridges and routed using source routing. The Fibre Channel switch of Fredericks has no rings and does not use source routing but rather routes using FSPF based on the destination address. The references employ totally different techniques, sufficiently different that Applicant submits that the only place the Final Office Action could have looked to gain the required knowledge is Applicant’s own disclosure, which the Final Office Action does

admit is improper. Applicant requests some positive teaching in the references that teaches such a drastic redesign of each reference. The Advisory action did not address this argument.

Fredericks relates to Fibre Channel RNID ELS messages. Referencing col. 6, lines 21-34, the addressing of the message is described. It states the message is preferably sent to the nearest neighbor node, though it also notes that any node can be addressed. The fabric controller well known address is only used if the nearest neighbor node is a fabric node, a special instance. Otherwise the message is addressed directly to the other node. Fredericks does not mention anything about retrieving the true destination address from the frame payload, and would not, as the frame is addressed to the relevant item. The Final Office Action appears to equate the command code in the RNID ELS to the required true destination address, but that equivalence is simply incorrect when the meaning of true destination address is construed properly.

The Final Office Action responds to this argument by misinterpreting Table 1 in Fredericks. Table 1 lists the header fields, as stated at col. 5, lines 19-22. This directly contradicts the statement in the Final Office Action that Table 1 shows that the destination ID is retrieved from the payload as Table 1 only defines header fields, not any payload fields.

The Advisory Action again just repeats that the table is used to show that destination information is referenced, ignoring that Table 1 defines header fields, not any payload fields, which payload is the location of the true destination addresses as specifically required in the claims.

Applicant submits the rejection is improper and that the claims are allowable.

6. <u>Claims 15, 33, 51 and 69</u>

Claims 15, 33, 51 and 69 require there to be equal cost routes and the frame is transmitted over all such routes. The Office Action brings in Lee to reject the claims. Applicant traverses the rejection. While Lee may mention the existence of equal cost routes, it does not teach or suggest sending the frame over <u>all</u> of them as required in the claims. The cited portion of Lee is related to routing a frame around bottlenecks, so replicating the frame across all of the routes is actually opposed to Lee as that would teach adding many more frames to a congested network.

The Final Office Action responds by repeating the rejection and then mischaracterizing its teachings. The Final Office Action correctly quotes "partially use a number of shortest paths

having the same cost" but then goes on to effectively state this means that the frames are transmitted over all of the equal cost paths. The Final Office Action has no support for the leap from "use a number" to "all." The Final Office Action clearly does not attempt to rebut Applicant's argument that using all of the paths would be contrary to the goal of Lee.

The Advisory Action states that Lee shows using a number of equal cost routes and then states that the number can be equal to the number of equal cost routes, so that all of the equal cost routes would be used. This ignores the quotation from Lee above, repeated here with emphasis: "partially use a number of shortest paths having the same cost." Applicant submit that the Advisory Action ignores the "partially" modifier. Applicant submits that "partially use a number" expressly excludes the case where the number used is the same as the number that exist. Specifically, "partially" is an antonym of "all" so that when the full phrase in Lee is considered the Advisory Action statement is misplaced.

Applicant submits the rejection is improper and the claims are allowable.

B. CONCLUSION

For reasons stated above, Applicant respectfully submits that the rejections should be reversed.

If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Wong, Cabello, Lutsch, Rutherford & Brucculeri, LLP Deposit Account Number 501922, referencing attorney docket number 112-0139US.

Respectfully submitted,

/Keith Lutsch/

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Filed Electronically

Keith Lutsch, Reg. No. 31,851
Wong, Cabello, Lutsch,
Rutherford & Brucculeri, L.L.P.
20333 SH 249, Suite 600
Houston, TX 77070
832-446-2405

VIII. CLAIMS APPENDIX

1. (Previously Presented) A switch for use in a fabric, the switch comprising:

a plurality of ports configured to receive and transmit a frame;

a fabric manager coupled to the plurality of ports to obtain the received frame and to provide a frame to be transmitted, the fabric manager configured to add information; and

a plurality of interconnected switching units coupled to the plurality of ports so that a frame may traverse multiple switching units in the switch,

wherein the fabric manager is configured to add information to the frame, the information including receive and transmit port identity, the switch identity and information about each of the plurality of switching units and interconnections when a frame traverses multiple switching units and to provide the frame for transmission.

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2. (Original) The switch of claim 1, the information further including the speed of the port receiving the frame and the link cost of a link connected to the transmit port.

3. (Original) The switch of claim 1, the information further including transmit and receive rates of the port receiving the frame and the port transmitting the frame.

4. (Original) The switch of claim 3, wherein the transmit and receive rates are based on a first defined period.

5. (Original) The switch of claim 4, the information further including transmit and receive rates of the port receiving the frame and the port transmitting the frame based on a second defined period, the second defined period being greater than the first defined period.

6. (Previously Presented) The switch of claim 5, the information further including the number of frames transmitted and received by the port receiving the frame and the port transmitting the frame.

7. (Previously Presented) The switch of claim 4, the information further including the number of frames transmitted and received by the port receiving the frame and the port transmitting the frame.

8. (Original) The switch of claim 1, wherein the frame has an original source and an original destination and wherein the fabric manager is configured to add the information to the frame when the frame is traveling from the original source to the original destination.

9. (Original) The switch of claim 8, wherein the fabric manager is configured to add the information to the frame when the frame is traveling from the original destination to the original source.

10. (Original) The switch of claim 1, wherein a node device is connected to one of the plurality of ports and wherein the fabric manager is configured to transmit the frame to the node device.

11. (Original) The switch of claim 1, wherein the fabric manager is configured to select the port to transmit the frame based on normal routing rules.

12. (Original) The switch of claim 11, wherein the frame contains source routing information and wherein the fabric manager is configured to select the port to transmit the frame based on the source routing information.

13. (Original) The switch of claim 12, wherein the fabric manager is configured to use normal routing rules if the source routing information does not indicate a device directly connected to the switch.

14. (Previously Presented) The switch of claim 11, wherein the switch is a Fibre Channel switch, wherein the frame is destination addressed to a well known address, and

wherein the fabric manager is configured to determine a true destination address by retrieving data from the frame payload.

15. (Original) The switch of claim 1, wherein there are a plurality of equal cost routes that can be used for transmitting the frame and wherein the fabric manager is configured to transmit the frame over all of such routes.

16. (Original) The switch of claim 1, wherein the switch is a Fibre Channel switch and the frame is an extended link services frame.

17. (Original) The switch of claim 1, wherein the fabric manager is configured to determine if the switch is the original destination of the frame, and if so, modify the frame to cause it to return to the original source.

18. (Original) The switch of claim 1, wherein the fabric manager is configured to determine if the switch was the original source of the frame, and if so, to capture the frame and not further transmit the frame.

19. (Original) A fabric comprising:

a first switch; and

a second switch coupled to the first switch,

wherein each of the first and second switches includes:

a plurality of ports configured to receive and transmit a frame; and

a fabric manager coupled to the plurality of ports to obtain the received frame and to provide a frame to be transmitted, the fabric manager configured to add information to the frame, the information including receive and transmit port identity and the switch identity, and to provide the frame for transmission, and

wherein at least one of the first and second switches further includes:

a plurality of interconnected switching units coupled to the plurality of ports so that a frame may traverse multiple switching units in the switch,

wherein the fabric manager of the switch is configured to add information about each of the plurality of switching units and interconnections when a frame traverses multiple switching units.

20. (Original) The fabric of claim 19, the information further including the speed of the port receiving the frame and the link cost of a link connected to the port.

21. (Previously Presented) The fabric of claim 19, the information further including transmit and receive rates of the port receiving the frame and the port transmitting the frame.

22. (Original) The fabric of claim 21, wherein the transmit and receive rates are based on a first defined period.

23. (Original) The fabric of claim 22, the information further including transmit and receive rates of the port receiving the frame and the port transmitting the frame based on a second defined period, the second defined period being greater than the first defined period.

24. (Previously Presented) The fabric of claim 23, the information further including the number of frames transmitted and received by the port receiving the frame and the port transmitting the frame.

25. (Previously Presented) The fabric of claim 22, the information further including the number of frames transmitted and received by the port receiving the frame and the port transmitting the frame.

26. (Original) The fabric of claim 19, wherein the frame has an original source and an original destination and wherein the fabric manager is configured to add the information to the frame when the frame is traveling from the original source to the original destination.

27. (Original) The fabric of claim 26, wherein the fabric manager is configured to add the information to the frame when the frame is traveling from the original destination to the original source.

28. (Original) The fabric of claim 19, wherein a node device is connected to one of the plurality of ports of the first or the second switch and wherein the fabric manager of the respective switch is configured to transmit the frame to the node device.

29. (Original) The fabric of claim 19, wherein the fabric manager is configured to select the port to transmit the frame based on normal routing rules.

30. (Original) The fabric of claim 29, wherein the frame contains source routing information and wherein the fabric manager is configured to select the port to transmit the frame based on the source routing information.

31. (Original) The fabric of claim 30, wherein the fabric manager is configured to use normal routing rules if the source routing information does not indicate a device directly connected to the switch.

32. (Previously Presented) The fabric of claim 29, wherein each switch is a Fibre Channel switch, wherein the frame is destination addressed to a well known address, and wherein the fabric manager is configured to determine a true destination address by retrieving data from the frame payload.

33. (Original) The fabric of claim 19, wherein there are a plurality of equal cost routes that can be used for transmitting the frame and wherein the fabric manager is configured to transmit the frame over all of such routes.

34. (Original) The fabric of claim 19, wherein each switch is a Fibre Channel switch and the frame is an extended link services frame.

35. (Original) The fabric of claim 19, wherein the fabric manager is configured to determine if the switch is the original destination of the frame, and if so, modify the frame to cause it to return to the original source.

36. (Original) The fabric of claim 19, wherein the fabric manager is configured to determine if the switch was the original source of the frame, and if so, to capture the frame and not further transmit the frame.

37. (Original) A network comprising:

a first node device;

a second node device; and

a fabric connected to the first and second node devices,

wherein the fabric includes:

a first switch; and

a second switch coupled to the first switch,

wherein each of the first and second switches includes:

a plurality of ports configured to receive and transmit a frame; and

a fabric manager coupled to the plurality of ports to obtain the received frame and to provide a frame to be transmitted, the fabric manager configured to add information to the frame, the information including receive and transmit port identity and the switch identity, and to provide the frame for transmission, and

wherein at least one of the first and second switches further includes:

a plurality of interconnected switching units coupled to the plurality of ports so that a frame may traverse multiple switching units in the switch,

wherein the fabric manager of the switch is configured to add information about each of the plurality of switching units and interconnections when a frame traverses multiple switching units.

38. (Original) The network of claim 37, the information further including the speed of the port receiving the frame and the link cost of a link connected to the port.

39. (Original) The network of claim 37, the information further including transmit and receive rates of the port receiving the frame and the port transmitting the frame.

40. (Original) The network of claim 39, wherein the transmit and receive rates are based on a first defined period.

41. (Original) The network of claim 40, the information further including transmit and receive rates of the port receiving the frame and the port transmitting the frame based on a second defined period, the second defined period being greater than the first defined period.

42. (Previously Presented) The network of claim 41, the information further including the number of frames transmitted and received by the port receiving the frame and the port transmitting the frame.

43. (Previously Presented) The network of claim 40, the information further including the number of frames transmitted and received by the port receiving the frame and the port transmitting the frame.

44. (Original) The network of claim 37, wherein the frame has an original source and an original destination and wherein the fabric manager is configured to add the information to the frame when the frame is traveling from the original source to the original destination.

45. (Original) The network of claim 44, wherein the fabric manager is configured to add the information to the frame when the frame is traveling from the original destination to the original source.

46. (Original) The network of claim 37, wherein a node device is connected to one of the plurality of ports of the first or the second switch and wherein the fabric manager of the respective switch is configured to transmit the frame to the node device.

47. (Original) The network of claim 37, wherein the fabric manager is configured to select the port to transmit the frame based on normal routing rules.

48. (Original) The network of claim 47, wherein the frame contains source routing information and wherein the fabric manager is configured to select the port to transmit the frame based on the source routing information.

49. (Original) The network of claim 48, wherein the fabric manager is configured to use normal routing rules if the source routing information does not indicate a device directly connected to the switch.

50. (Previously Presented) The network of claim 47, wherein each switch is a Fibre Channel switch, wherein the frame is destination addressed to a well known address, and wherein the fabric manager is configured to determine a true destination address by retrieving data from the frame payload.

51. (Original) The network of claim 37, wherein there are a plurality of equal cost routes that can be used for transmitting the frame and wherein the fabric manager is configured to transmit the frame over all of such routes.

52. (Original) The network of claim 37, wherein each switch is a Fibre Channel switch and the frame is an extended link services frame.

53. (Original) The network of claim 37, wherein the fabric manager is configured to determine if the switch is the original destination of the frame, and if so, modify the frame to cause it to return to the original source.

54. (Original) The network of claim 37, wherein the fabric manager is configured to determine if the switch was the original source of the frame, and if so, to capture the frame and not further transmit the frame.

55. (Previously Presented) A method of providing frame routing information through a switch having a plurality of ports and a plurality of interconnected switching units coupled to the plurality of ports so that a frame may traverse multiple switching units in the switch, the method comprising:

receiving a frame;

adding information to the frame, the information including receive and transmit port identity, the switch identity and information about each of the plurality of switching units and interconnections when a frame traverses multiple switching units; and

providing the frame to a port for transmission.

56. (Original) The method of claim 55, the information further including the speed of the port receiving the frame and the link cost of a link connected to the port.

57. (Original) The method of claim 55, the information further including transmit and receive rates of the port receiving the frame and the port transmitting the frame.

58. (Original) The method of claim 57, wherein the transmit and receive rates are based on a first defined period.

59. (Original) The method of claim 58, the information further including transmit and receive rates of the port receiving the frame and the port transmitting the frame based on a second defined period, the second defined period being greater than the first defined period.

60. (Previously Presented) The method of claim 59, the information further including the number of frames transmitted and received by the port receiving the frame and the port transmitting the frame.

61. (Previously Presented) The method of claim 58, the information further including the number of frames transmitted and received by the port receiving the frame and the port transmitting the frame.

62. (Original) The method of claim 55, wherein the frame has an original source and an original destination and the information is added to the frame when the frame is traveling from the original source to the original destination.

63. (Original) The method of claim 62, wherein the information is added to the frame when the frame is traveling from the original destination to the original source.

64. (Original) The method of claim 55, wherein a node device is connected to one of the plurality of ports and wherein the frame is provided for transmission to the node device.

65. (Original) The method of claim 55, wherein the port selected to transmit the frame is based on normal routing rules.

66. (Original) The method of claim 65, wherein the frame contains source routing information and wherein the port selected to transmit the frame is based on the source routing information.

67. (Original) The method of claim 66, wherein normal routing rules are used if the source routing information does not indicate a device directly connected to the switch.

68. (Previously Presented) The method of claim 65, wherein the switch is a Fibre Channel switch, wherein the frame is destination addressed to a well known address, and wherein a true destination address is determined by retrieving data from the frame payload.

69. (Original) The method of claim 55, wherein there are a plurality of equal cost routes that can be used for transmitting the frame and wherein the frame is transmitted over all of such routes.

70. (Original) The method of claim 55, wherein the switch is a Fibre Channel switch and the frame is an extended link services frame.

71. (Original) The method of claim 55, further comprising:

determining if the switch is the original destination of the frame, and if so, modifying the frame to cause it to return to the original source.

72. (Original) The method of claim 55, further comprising:

determining if the switch was the original source of the frame, and if so, to capturing the frame and not further transmitting the frame.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.